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04/08/97

PATENT

15275/8610 (Dobbins 2-1)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Reissue Application No.:

Filed:

U.S. Patent No.: 5,043,002

Granted:

August 27, 1991

Patentees:

Michael S. Dobbins  
Robert E. McLay

For: METHOD OF MAKING FUSED SILICA BY  
DECOMPOSING SILOXANES

Paper  
2

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR §§ 1.97-1.98**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 CFR §§ 1.97-1.98, applicants hereby call to the attention of the U.S. Patent and Trademark Office the references listed on the attached PTO-1449 form.

Of the references listed on the PTO-1449 form, the following were cited during original prosecution of the application corresponding to the above patent.

U.S. Patent No. 3,806,224 to MacChesney et al.  
U.S. Patent No. 3,823,995 to Carpenter  
U.S. Patent No. 3,932,162 to Blankenship  
U.S. Patent No. 4,472,510 to January  
U.S. Patent No. 4,501,602 to Miller et al.  
Japanese Patent Application Serial No. 60-90838

In addition, the PTO-1449 form lists the following references:

U.S. Patent No. 2,269,059 to McLachlan;  
U.S. Patent No. 2,272,342 to Hyde;  
U.S. Patent No. 3,086,851 to Wagner;  
U.S. Patent No. 3,303,115 to Nitsch;  
U.S. Patent No. 3,826,560 to Schulz;  
U.S. Patent No. 4,113,844 to Tokimoto et al.;  
U.S. Patent No. 4,148,621 to Gliemerth;  
U.S. Patent No. 4,156,689 to Ashby et al.;  
U.S. Patent No. 4,689,420 to Baile et al.;  
U.S. Patent No. 4,975,102 to Edahiro;  
UK Patent Application No. 2,049,641;  
UK Patent Application No. 2,083,806;  
UK Patent Application No. 1,562,966;  
UK Patent Application No. 1,415,141;  
European Patent Application No. 38,900;  
European Patent Application No. 436,185;  
European Patent Application No. 103,448;  
PCT Publication No. WO 90/10596;  
German Patent No. 3,016,010;  
Canadian Patent No. 1,179,477;  
Japanese Patent Application No. 89-138,145;  
Japanese Patent Application No. 62-108748;  
Japanese Patent Application No. 54-2653;  
Japanese Patent Application No. 59207845;  
Japanese Patent Application No. 83003981;  
Japanese Patent Application No. 63310744;  
Japanese Patent Application No. 59131537;  
Japanese Patent Application No. 84000455;  
Japanese Patent Application No. 51-56641;

Serial No. 5,043,002

Japanese Patent Application No. 84025741;  
Japanese Patent Application No. 58213638;  
Japanese Patent Application No. 84011536;  
Japanese Patent Application No. 85003017;  
Japanese Patent Application No. 57170835;  
Japanese Patent Application No. 61026526;  
Japanese Patent Application No. 2145448;  
Japanese Patent Application No. 1,124,805;  
Japanese Patent Application No. 60-90836;  
Japanese Patent Application No. 60-90837;

Davidson et al., "Kinetics of the Oxidation of Octamethylcyclotetrasiloxane in the Gas Phase," J. Chem. Soc., 72(4):1088-95 (1975);

Davidson et al., "Kinetics of the Thermolysis of Octamethylcyclotetrasiloxane in the Gas Phase," J. Chem. Soc., 71(11):2260-65 (1975);

Patnode et al., "Methylpolysiloxanes," J. Am. Chem. Soc., 68:358-63 (1946);

Kantor, et al., "The Mechanism of the Acid- and Base-catalyzed Equilibration of Siloxanes," J. Am. Chem. Soc., 76:5190-96 (1954);

Kendrick, T.C., "The Acid-catalysed Polymerisation of Cyclosiloxanes. Part I. The Kinetics of the Polymerisation of Octamethylcyclotetrasiloxane Catalysed by Anhydrous Ferric Chloride-Hydrogen Chloride," J. Chem. Soc., pp. 2027-35 (1965);

Scott, D.W., "Equilibria Between Linear and Cyclic Polymers in Methylpolysiloxanes," J. Am. Chem. Soc., 68:2294-98 (1946);

Hunter et al., "Organo-Silicon Polymers. The Cyclic Dimethyl Siloxanes," J. Am. Chem. Soc., 68:667-72 (1946);

- Hunter et al., "Organosilicon Polymers. II. The Open Chain Dimethylsiloxanes With Trimethylsiloxy End Groups," J. Am. Chem. Soc., 68:2284-90 (1946);
- Flaningham, O.L., "Vapor Pressures of Poly(dimethylsiloxane) Oligomers," Journal of Chemical and Engineering Data 31(3):266-72 (1986);
- Wilcock, D.F., "Vapor Pressure-Viscosity Relations in Methylpolysiloxanes," J. Am. Chem. Soc., 68:691-96 (1946);
- Hurd, C.B., "Studies on Siloxanes. I. The Specific Volume and Viscosity in Relation to Temperature and Constitution," J. Am. Chem. Soc., 69:364-70 (1946);
- Johnson, G.C., "Flow Characteristics of Linear, End-Blocked Dimethylpolysiloxane Fluids," J. Chem. Eng. Data 6(2):275-78 (1961);
- Myers et al., "Surface Tension of Octamethylcyclotetrasiloxane and Hexamethyldisilazane and Their Solutions With Carbon Tetrachloride and n-Hexadecane," Journal of Chemical and Engineering Data 14(2):161-64 (1969);
- Marsh, K.N., "Mutual Diffusion in Octamethylcyclotetrasiloxane Mixtures," pp. 894-901 (1967);
- Vogel et al., "Mutual Solubilities in Water-Permethylsiloxane Systems," Journal of Chemical and Engineering Data 9(4):599-601 (1964);
- Osthoff et al., "Physical Properties of Organosilicon Compounds. III. Thermodynamic Properties of Octamethylcyclotetrasiloxane," J. Am. Chem. Soc., 76:399-401 (1954);
- Damm et al., "Sensitivity of the Siloxane Linkage Towards Acidolytic Cleavage," Angew. Chem. Internat. Edit. 3(4):1-13 (1964);
- Lipowitz, J., "Flammability of Poly(Dimethylsiloxanes). I. A Model For Combustion," J. Fire & Flammability 7:482-503 (1976);

Lipowitz et al., "Flammability of Poly(dimethylsiloxanes). II. Flammability and Fire Hazard Properties," J. Fire and Flammability 7:504-29 (1976);

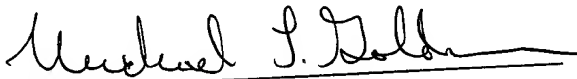
Silicon Compounds Register and Review, Petrarch Systems, Inc. (1994);

Kashan, W.E., "The Dependence of Flame Temperature on Mass Burning Velocity," Sixth Symposium (International) on Combustion, Reinhold Publishing Corp., N.Y. (1975) pp. 134-143; and

Fristom & Westernberg, Flame Structure, McGraw-Hill (1965) pp. 172-74.

Respectfully submitted,

Dated: April 7, 1997

  
Michael L. Goldman  
Registration No. 30,727

Nixon, Hargrave, Devans & Doyle LLP  
P.O. Box 1051  
Clinton Square  
Rochester, New York 14603  
Telephone: (716) 263-1304  
Telecopy: (716) 263-1600

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PATENT AND TRADEMARK OFFICEINFORMATION DISCLOSURE  
STATEMENT BY APPLICANT(use several sheets if necessary)  
1997  
(PTO-1449)ATTY. DOCKET NO.  
15275/8610 (Dobbins 2-1)PATENT NO.  
5,043,002

APPLICANT

Dobbins et al.

DATE OF PATENT

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GROUP

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPRO- PRIATE

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION IF APPRO- PRIATE
	56	JP 57170835	Japan			
	57	JP 61026526 A	Japan			
	58	JP 2145448	Japan			
	59	JP 1124805	Japan			
	60	JP 60-90836	Japan			
	61	JP 60-90837	Japan			

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)		
	62	Damm et al., "Sensitivity of the Siloxane Linkage Towards Acidolytic Cleavage," <u>Angew. Chem. internat. Edit.</u> 3(4):1-12 (1964)
	63	Lipowitz, J., "Flammability of Poly(Dimethylsiloxanes). I. A Model For Combustion," <u>J. Fire &amp; Flammability</u> 7:482-503 (1976)
	64	Lipowitz et al., "Flammability of Poly(Dimethylsiloxanes). II. Flammability and Fire Hazard Properties," <u>J. Fire &amp; Flammability</u> 7:504-29 (1976)
	65	<u>Silicon Compounds Register and Review</u> , (1984)
	66	Kashan, W.E., "The Dependence of Flame Temperature on Mass Burning Velocity," Sixth Symposium (International) on Combustion, Reinhold Publishing Corp., N.Y. (1975) pp. 134-143
	67	Fristom & Westenberg, <u>Flame Structure</u> , McGraw-Hill (1965) pp. 170-74
EXAMINER		DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 6 9; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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	1	2,269,059	01/06/42	McLachlan			
	2	2,272,342	02/10/42	Hyde			
	3	3,086,851	04/23/63	Wagner			
	4	3,303,115	02/07/67	Nitsche			
	5	3,806,224	04/23/74	MacChesney			
	6	3,823,995	07/16/74	Carpenter			
	7	3,826,560	07/30/74	Schulz			
	8	3,932,162	01/13/76	Blankenship			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION IF APPRO- PRIATE
	9	GB 1,415,141		United Kingdom			
	10	GB 1,562,966		United Kingdom			
	11	GB 2,049,641 A		United Kingdom			
	12	GB 2,083,806 A		United Kingdom			
	13	EP 38900		Europe			
	14	EP 0 103 448		Europe			
	15	EP 0 436 185 A1		Europe			

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

	16	Davidson et al., "Kinetics of the Oxidation of Octamethylcyclotetrasiloxane in the Gas Phase," J. Chem. Soc., 72(4):1088-95 (1975)
	17	Davidson et al., "Kinetics of the Thermolysis of Octamethylcyclotetrasiloxane in the Gas Phase," J. Chem. Soc., 71(11):2260-65 (1975)
	18	Patnode et al., "Methylpolysiloxanes," J. Am. Chem. Soc., 68:358-63 (1945)
	19	Kantor et al., "The Mechanism of the Acid- and Base-catalyzed Equilibration of Siloxanes," J. Am. Chem. Soc., 76:5190-97 (1954)
	20	Kendrick, T.C., "The Acid-catalysed Polymerisation of Cyclosiloxanes. Part I. The Kinetics of the Polymerisation of Octamethylcyclotetrasiloxane Catalysed by Anhydrous Ferric Chloride-Hydrogen Chloride," J. Chem. Soc., 2027-35 (1965)

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	21	4,113,844	09/12/78	Tokimoto et al.			
	22	4,148,621	04/10/79	Gliemeroth			
	23	4,156,689	05/29/79	Ashby et al.			
	24	4,472,510	09/18/84	January			
	25	4,501,602	02/26/85	Miller et al.			
	26	4,689,420	08/25/87	Baile et al.			
	27	4,975,102	12/04/90	Edahiro			

### FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION IF APPRO- PRIATE
	28	WO 90/10596					
	29	DE 3,016,010		Germany			
	30	CA 1,179,477		Canada			
	31	JP 89-138145		Japan			
	32	JP 62-108748		Japan			
	33	JP 54-2653		Japan			
	34	JP 60-90838		Japan			

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	36	Hunter et al., "Organo-Silicon Polymers. The Cyclic Dimethyl Siloxanes," J. Am. Chem. Soc., 68:667-72 (1946)
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	42	JP 63310744 A	Japan			
	43	JP 59131537	Japan			
	44	JP 84000455	Japan			
	45	JP 51056641	Japan			
	46	JP 84025741	Japan			
	47	JP 58213638	Japan			
	48	JP 84011536	Japan			
	49	JP 85003017	Japan			

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50	Hurd, C.B., "Studies on Siloxanes. I. The Specific Volume and Viscosity in Relation to Temperature and Constitution," J. Am. Chem. Soc., 68:364-70 (1946)	
51	Johnson, G.C., "Flow Characteristics of Linear, End-Blocked Dimethylpolysiloxane Fluids," J. Chem. Eng. Data, 6(2):275-78 (1961)	
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